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BEETLES FROM THE LONDON CLAY (EOCENE) OF BOGNOR REGIS, SUSSEX

By E. B. BRITTON

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SYNOPSIS

A systematic account is given of 231 specimens of fossil beetles collected from the beach at Bognor Regis, Sussex, by Mr. E. M. Venables and Mr. H. E. Taylor. The beetles are the first insects to have been obtained from the London Clay, and represent the families Anobiidae, Eucnemidae, Throscidae, Scolytidae, Curculionidae and Scarabaeidae. Eight new genera and eleven new species are described. In addition there are some 47 other forms, but their state of preservation precludes adequate description. Two new species are referred to modern genera, one of which, *Pactopus* (family Throscidae), is represented by one living species occurring in British Columbia and the north-west United States. Almost all of the beetles belong to groups of which the living forms feed in, or are associated with, wood or bark.

I. INTRODUCTION

For many years two well-known amateur geologists, Mr. H. E. Taylor and Mr. E. M. Venables, have collected fossils from the London Clay from the beach at Bognor Regis, Sussex. Among their discoveries are many pyritized beetles which are the first insects known from the London Clay.* The specimens are found in the intertidal zone, where they are washed out of the matrix by the action of the sea. No specimens have, as yet, been found *in situ*. Details of the method of collecting will be given in a separate paper by Messrs. Venables & Taylor.

The beetle remains are very small, always less than 6 mm. in length, so that their recognition amongst the beach detritus calls for very keen observation. Nevertheless, the skill and sustained enthusiasm of the collectors has resulted in an accumulation of no less than 231 specimens. Of these 119 specimens were collected by Mr. Taylor and 112 by Mr. Venables. Both Mr. Venables and Mr. Taylor have now generously presented their collection to the British Museum (Natural History), and the numbers given throughout the text are the registered catalogue numbers of the Department of Palaeontology, British Museum (Natural History).

The 231 specimens represent some 58 forms in seven families, namely, Anobiidae, Eucnemidae, Throscidae, Scolytidae, Carabidae, Scarabaeidae and Curculionidae, the latter greatly predominating. The Curculionidae (Weevils) is also the dominant family in the Recent fauna, being the largest in the Animal Kingdom and numbering 60,000 known species.

In some cases the specimens can be assigned to a family with certainty. Less frequently the subfamily or tribe is recognizable, but in only two cases is it possible to place the specimen in an existing, modern genus. I have thought it advisable to erect new genera for those species which can be classified to a subfamily for the following reasons : (*a*) It is desirable that names should be provided in this, the starting point of a new beetle fauna, and (*b*) it is a mistake to attempt to force the new species into the framework of existing genera when the evidence available is insufficient. This practice would imply a certainty that did not, in fact, exist.

The collection provides some positive information on the insect fauna of the Eocene. It is hoped that the knowledge that insect fossils are to be found in the London Clay at Bognor may lead to the discovery of similar remains in exposures elsewhere.

* The first beetles were discovered by Mr. Venables in May, 1936. Mr. Taylor started his collection in 1951.

II. OBSERVATIONS ON HABITAT

The maximum thickness of the London Clay is about 500 ft., and all evidence points to its having been deposited in the sea beyond the mouth of a great river. With this in mind it is of interest to observe that most of the species of Coleoptera found at Bognor belong to groups of which the modern forms feed upon, or are associated with, wood or bark. Of the families represented in the collection, the Anobiidae, Eucnemidae, Throscidae and Scolytidae, are composed very largely of species found in wood or bark. In addition, most of the species representing the Curculionidae belong, where recognizable, to groups which at the present time have a wood-feeding habit. Even one of the two species of Scarabaeidae belongs to a tribe, representatives of which are found in decaying wood.

Fossil wood is commonly found at Bognor and at other coastal exposures of the London Clay. It might be thought likely that beetles would be found in this wood, but Mr. Taylor has informed me that although he has examined quantities of the wood he has never found an insect in it.

The London Clay beetles show no unusual or primitive characters when compared with modern forms. This is to be expected as it is well established that the origins of the families of Coleoptera were very remote.

The distributions of the modern species most closely related to the fossil forms are very diverse, so that it is scarcely possible to generalize on the likely climatic conditions in which the fossil species lived. Such indications as there are suggest that the climate was Mediterranean or subtropical. Information on the distribution of related forms is given with the descriptions of the individual genera or species.

III. SYSTEMATIC DESCRIPTIONS

Order COLEOPTERA

Family ANOBIIDAE Redtenbacher, 1849

Genus ***VENABLESIA*** nov.

DIAGNOSIS. Antennal insertions not close; eye not divided by the canthus; posterior angles of the pronotum obtuse and with a small shallow emargination at the apex of each; metasternum transverse with a median longitudinal groove; elytra with a scutellar striole; anterior and middle legs when retracted fit into a transverse cavity between the posterior edge of the prothorax and the anterior edge of the metasternum; basal abdominal ventrite hollowed to receive the transverse posterior coxa and the coxa hollowed posteriorly to receive the trochanter and the femur; all legs can be retracted to conform to the general level of the ventral surface.

TYPE SPECIES. *Venablesia colluvium* sp. nov.

DESCRIPTION. The prothorax is excavate beneath and hooded over the head which is deflexed so that it rests on the flat anterior faces of the anterior coxae; the antennae when at rest are received into a cavity in the prosternum between the anterior

coxae, the cavity between the eye, mandible and anterior tibia on each side being filled by the enlarged basal segment of the antenna; eyes large, partly covered by the edge of the prothorax with a canthus projecting on to the eye from the inner side above the basal segment of the antenna; mandibles large and flat; metasternum transverse, with a median longitudinal groove; anterior and middle legs retractable into a transverse cavity between the posterior edge of the prothorax and the anterior edge of the metasternum, the coxa, tibia and tarsus of the middle leg being visible when retracted; basal abdominal ventrite is hollowed to receive the transverse posterior coxa; the coxa is hollowed posteriorly to receive the trochanter and femur so that when retracted the lower surface of the posterior leg, like the other legs, conforms with the general level of the lower surface; the metasternum terminates anteriorly in a pointed peg-like process; the second and fifth abdominal ventrites are visible; elytra each with nine longitudinal, punctured striae and a short striole at the base on the inner side of the inner stria; a very small scutellum is visible between the elytra at the base; the outer elytral stria is rather more deeply impressed than the remainder; the pronotum has a small shallow emargination at the apex of the posterior angle on each side; sutures between abdominal ventrites are more deeply impressed at the sides than in the middle.

Remarks. The gender of the generic name is feminine. The genus is named in honour of Mr. E. M. Venables to whom we owe the discovery of the specimens on which this genus is based.

Venablesia colluvium sp. nov.

(Pl. 2, figs. 1, 3)

Diagnosis. As for genus.

Type material. *Holotype:* In.49102. A specimen with prothorax and hindbody, with elytra, but without head. *Paratypes:* Twenty-five specimens. In.49103–49106, with head, pronotum and hindbody. In.49107–49109, In.49393–49395, with part of pronotum and hindbody. In.43364, In.49110–40113, In.40396–49403, In.49429, In.49434, with hindbody only.

Measurements. Length; from apex of prothorax to apex of abdomen, 2·1–4·0 mm.

Description. Elytra with striae impressed and punctured, the punctures separated by less than their own diameter; elytral intervals between striae with sparse, minute punctures; pronotum, metasternum and abdominal ventrites closely punctured; wings fully developed.

Remarks. The hooded form of the prothorax, the deflexed head, posterior angles of the pronotum obtuse, the hollowed first ventrite, antennae not inserted close together, the eye not divided by the canthus and the elytra with a scutellar striole place the genus in the family Anobiidae, very close to the modern genus *Stagetus* Wollaston (= *Theca*, Mulsant & Rey). The ventral surface of *Stagetus denticornis* Champion, an Indian species, is illustrated in Pl. 2, fig. 2, for comparison with *Venablesia*. The pronotum differs from that in *Stagetus* by having a small, shallow emargination at the junction of the lateral and posterior edges.

The genus *Stagetus* is widely distributed but the majority of the 54 described species occur in the southern parts of the palaearctic region. No species of the genus are found in the British Isles, although several species occur in France. As far as is known the species of *Stagetus* live in woody fungi (e.g. *Fomes*).

The specific name is derived from *colluvium* = detritus.

Venablesia spp. indet.

Specimen In.49430, including head; thorax and abdomen, but badly worn. Length 2·5 mm.; greatest width (across elytra at the level of the metasternum) 2·25 mm. Prothorax hooded over the head, which is deflexed and resting on the prosternum. Legs folded into transverse cavities as in *Venablesia*. Metasternum transverse, with a deep median longitudinal groove. Anterior edge of its metasternum between the globular middle coxae broadly V-shaped, open anteriorly.

Specimens In.49431–49432, including prothorax and hindbody. Length 2·25 mm., and 1·65 mm.; greatest width 1·6 mm. and 1·25 mm. The part of the prothorax visible in the smaller specimen suggests the hooded form of Anobiidae. Legs folded into transverse cavities. Metasternum transverse with a median longitudinal groove and a narrow anterior process between the middle coxa.

Family Throscidae Erichson, 1847

Subfamily Throscinae Erichson, 1847

Genus ***PACTOPUS*** LeConte, 1868

Diagnosis. Throscidae in which the second and third abdominal ventrites have a longitudinal groove on each side for the reception of the posterior tarsi; metasternum with a similar narrow but more oblique groove on each side for the reception of the tarsi of the middle legs.

Type species. *Pactopus horni* LeConte, 1868.

Pactopus avitus sp. nov.

(Pl. 2, fig. 4; Pl. 3, fig. 1)

Diagnosis. Species of *Pactopus* in which the striation of the elytra and the puncturation of the pronotum and abdomen are very faint.

Type material. *Holotype:* In.49404.

Measurements. Length 6·2 mm.; maximum width, at the posterior angles of the pronotum 2·5 mm.; length of the elytra 4·5 mm.; length of the pronotum 1·4 mm.

Description. The single specimen can be assigned with certainty to the family Throscidae, and to the subfamily Throscinae. The following characters of the family are clearly visible: general "elateroid" form; prothorax markedly tapered towards the anterior end; head sunk into the prothorax as far as the middle of the

eyes ; antennae long, inserted on the frons before the middle of the eyes, and retracted into deep grooves on the underside of the prothorax ; the suture between the first two abdominal ventrites not obliterated ; prosternum truncate in front and produced posteriorly into a process which fits into a median cavity in the anterior end of the mesosternum ; head with the labrum visible above the mandibles which rest behind on the truncate end of the prosternum ; posterior angles of the pronotum acute ; elytra covering the abdomen.

Remarks. The subfamily Throscinae is distinguished from the subfamilies Lissominae and Balginae[1] by the following characters which are all visible in the specimen : trochanters short (ratio of length of middle femur/length of the trochanter c. 3 : 1) ; anterior end of the prosternum transversely truncate, not convex ; the antennal groove in the propleuron on each side is open (i.e. does not communicate with a pocket) and extends back along the suture between pleuron and sternum, then curves outwards until it runs close to the lateral edge of the prothorax near the posterior angle.

The genus *Pactopus* differs from all other known genera in the family by having longitudinal grooves on the second and third ventrites for the reception of the posterior tarsi. In addition the tarsi of the middle legs are received into narrow oblique grooves on the metasternum. The presence of grooves on the abdomen for the reception of the posterior tarsi is rare in Coleoptera, occurring elsewhere only in the subfamily Gastraulacinae, of the family Eucnemidae, and in *Octocryptus* and *Hexaulacus* of the Elateridae[2]. The available characters of the specimen do not diverge in any important degree from those of the only known living species, *Pactopus horni* LeConte, and for this reason I have no hesitation in including the London Clay specimen in the same genus. The ventral surface of *Pactopus horni* is illustrated in Pl. 3, fig. 2, for comparison with *Pactopus avitus*.

Pactopus avitus differs from the modern species *P. horni*, by having the elytral striation, and puncturation of the pronotum and abdomen very faint.

Pactopus horni LeConte is found in northern California, Nevada, Oregon, Washington, Vancouver and British Columbia. No information on the habitat of the species is available, but it probably lives in rotten wood, like other Throscidae.

The specific name is derived from *avitus* = ancestral.

Family Eucnemidae Bach, 1854

Subfamily Gastraulacinae Fleutiaux, 1901

Genus ***POTERGITES*** nov.

Diagnosis. An Eocene genus of Eucnemidae ; propleuron on each side has a groove along the outer margin for the reception of the antenna ; metasternum with an oblique groove on each side for the reception of the middle tarsus ; second

[1] Crowson, R. A., 1955, The Natural Classification of the Coleoptera : 63.

[2] Fleutiaux, E., 1942, Revue française d'Entomologie, **9** : 79, 10 figs. Moyens de Défense de quelques Coléoptères Sternoxes.

and third abdominal ventrites with a groove on each side for the reception of the posterior tarsus ; lateral edges of the pronotum broadly rounded, posterior angles acute ; basal edge of the pronotum with a truncate lobe in the middle ; scutellum transverse, quadrate ; elytra each with nine longitudinal striae ; mesosternum with a median anterior cavity for the reception of the posterior process of the prosternum ; posterior coxae transverse, with a posterior hollow for the reception of the femur ; abdomen with five visible ventrites.

TYPE SPECIES. *Potergites senectus* sp. nov.

REMARKS. The genus is placed with certainty in the family Eucnemidae and the subfamily Gastraulacinae because of the body size and form and presence of the grooves for the reception of the antennae and the mid and hind tarsi.

The subfamily Gastraulacinae has been divided by Fleutiaux into two tribes, the Gastraulacini and the Dendrocharini, each of which contains one genus in which both metasternum and abdomen have grooves for the tarsi. The Gastraulacini have the mandibles exposed from below, while in the Dendrocharini they are covered by the prosternum. The head is missing in all specimens available so that it is not possible to place the present genus with certainty either with *Potergus* in the Dendrocharini or with *Epipleurus* in the Gastraulacini. The form of the pronotum, however, suggests that it is more closely related to *Epipleurus*. *Epipleurus* and *Potergus* each include a single living species and both occur in the Indo-Malayan region.

The gender of the generic name is masculine.

Potergites senectus sp. nov.

(Pl. 3, figs. 3, 4)

DIAGNOSIS. As for genus.

TYPE MATERIAL. *Holotype :* In.49405. A specimen with mesothorax and hindbody attached but without elytra. *Paratypes :* Ten specimens, In.49406–49415, hindbody only, one with elytra ; 14 specimens, In.49114–49125, 49689–49690, hindbody only, five with elytra.

MEASUREMENTS. *Holotype :* length (pronotum and hindbody) 3·0 mm. *Paratypes*, length (mesothorax, metathorax and abdomen) 1·9–3·2 mm.

DESCRIPTION. Pronotum : ratio of width across the posterior angles to the middle length 1·6 : 1. Elytra : width across the base equal to the middle length. The sides of the pronotum are broadly rounded anteriorly and the posterior angles are acute. Surface of the pronotum densely punctured, the punctures separated by less than their own diameter. The grooves for the reception of the antennae run from the anterior edge of the pronotum parallel to the lateral edge, the grooves being deepest at the anterior end. The surface of the scutellum bears 6 or 7 punctures like those on the pronotum. The elytral striae are marked by fine regular punctures. Surface of the metasternum densely punctured, with the oblique tarsal groove directed from the middle coxal cavity towards the posterior outer angle. Abdominal ventrites densely punctured.

REMARKS. The specific name is derived from *senectus* = very old.

Family Scarabaeidae W. S. Macleay, 1839

Subfamily Aphodiinae W. S. Macleay, 1839

Tribe Eupariini Schmidt, 1910

Genus ***SAPROSITES*** Redtenbacher, 1858

Diagnosis. A genus of Aphodiinae in which the middle and posterior tibiae are without transverse carinae ; coxae of the middle legs approximately cylindrical with the axis inclined about 60° to the longitudinal axis of the body ; posterior coxae flat, extending the full half-width of the metasternum ; metasternum with a deep, median longitudinal groove ; mesosternum with a median longitudinal ridge ; abdomen with six ventrites visible (at the sides) each ventrite being deeply, longitudinally strigose along the base.

Type species. *Saprosites peregrinus* Redtenbacher 1858 (by monotypy).

Saprosites cascus sp. nov.

(Pl. 4, fig. 1)

Type material. *Holotype :* In.49695. *Paratypes :* Three specimens, In.49496, In.49427–49428.

Measurements. Length *c.* 2·6 mm.; width *c.* 1·7 mm. (mesothorax, metathorax and abdomen).

Description. Metasternum coarsely punctured, the punctures most numerous near the anterior and lateral margins ; abdominal ventrites densely and coarsely punctured towards the sides, punctures absent or sparse in the middle ; each ventrite with a transverse row of rather quadrate punctures along the anterior margin, the punctures separated by narrow ridges, giving the longitudinally strigose appearance ; elytra with longitudinal punctured striae ; median longitudinal ridge between the middle coxae itself with a very fine median longitudinal groove which is continued on to the metasternum to unite with the deep median groove.

Remarks. The genus *Saprosites* is represented by about 50 living species which are mainly tropical in distribution. It occurs in tropical America, Central Africa, Madagascar, India, Indo-China, Borneo, New Guinea, Australia, New Zealand and Hawaii. Very little is known of the biology of the species of *Saprosites*, but some, at least, are known to live beneath the bark of dead trees.

The specific name is derived from *cascus* = old.

Subfamily Scarabaeinae W. S. Macleay, 1839

Genus ***ONTHOPHAGUS*** Latreille, 1802

Diagnosis. Metasternal shield broad, with longitudinal, cylindrical middle coxae ; posterior coxae transverse, abdomen small ; without visible scutellum ; elytra with six punctured striae which are deepened at their apices.

Type species. *Onthophagus taurus* (von Schreber).

Onthophagus sp. indet.

MATERIAL. One specimen, In.49691, comprising mesosternum, metasternum, abdomen and cast of elytra.

MEASUREMENTS. Length 1·6 mm.; maximum width 2·0 mm.

REMARKS. The combination of broad metasternal shield, longitudinal middle coxae, transverse posterior coxae; small abdomen and elytral striae deepened at their apices places this specimen with reasonable certainty in the genus *Onthophagus*. This is one of the largest of animal genera, including about 2,000 living species, of which most are dung-feeders, though some are found in carrion and others in fungi or decaying vegetation.

Family SCOLYTIDAE Stephens, 1839

Genus ***BLASTOPHAGUS*** Eichoff, 1864

?***Blastophagus*** sp. indet.

MATERIAL. One specimen, In.49416, including head, pronotum, elytra, abdomen. One antennal club and scape and one posterior femur are visible.

MEASUREMENTS. Length 4·15 mm. (including head).

DESCRIPTION. Form cylindrical; head with a short blunt rostrum, antenna terminated in a compact, broadly expanded, four-segmented club, basal segment (scape) half as long as the antenna; the two basal abdominal ventrites each longer than the third and fourth ventrites together; posterior coxae transverse; basal edge of the metasternum having an anteriorly directed median angle continued into a short median groove; metasternum punctured; middle coxae globular, separated by less than their own width; anterior coxae globular, almost contiguous; posterior femur fusiform, ratio length/width = 3 : 1; pronotum with faint traces of puncturation, without defined lateral margins; elytra with striae slightly impressed but regularly and coarsely punctured.

REMARKS. The specimen differs from *Blastophagus* in having the eyes more nearly circular, and lacking the granulate carina along the basal edges of the elytra. *Blastophagus* is represented in the British fauna by two living species which live beneath the bark of pine trees. *Blastophagus piniperda* (Linnaeus) is figured in *Handbooks for the Identification of British Insects*, 5, part 15, 1953, E. A. J. Duffy, fig. 34.

Family CURCULIONIDAE Gyllenhal, 1813

Subfamily HYLOBIINAE Thompson, 1865

Genus ***PISSODITES*** nov.

DIAGNOSIS. Mesothorax with globular coxae separated by very narrow median extensions of the mesosternum and metasternum, the distance between the coxae being about one-eighth of the diameter of the coxae; posterior coxae transverse, each with ratio of width/length about 1·8 : 1; posterior coxae separated by about

half the width of a coxae ; metasternum ratio, greatest width/middle length about 1·5 : 1 ; metasternum separated from the first abdominal ventrite by an obtuse angled suture ; the first and second abdominal ventrites very large, each about as long as the third, fourth and fifth ventrites together, scutellum visible, triangular.

TYPE SPECIES. *Pissodites argillosus* sp. nov.

REMARKS. The generic name is masculine and is derived from *Pissodes*, a genus of living weevils.

Pissodites argillosus sp. nov.

(Pl. 4, figs. 3, 4)

DIAGNOSIS. As for genus.

TYPE MATERIAL. *Holotype :* In.49325. *Paratypes :* Eight specimens, In.49326–49333. The specimens comprise the hindbody and elytra only.

MEASUREMENTS. Length 2·4–3·2 mm.; width 1·3–1·9 mm.

DESCRIPTION. Ventral surface, metasternum and the first and second ventrites fairly uniformly punctured, the density of punctures being *c.* 350 per sq. mm. Ventrites 3, 4 and 5 are rather more densely and coarsely punctured. Suture between the first and second ventrites usually slightly arched, faint in the middle and strongly impressed at the sides. Posterior margins of the coxal cavities usually very narrow and slightly raised, defined by a row of larger semi-confluent punctures parallel to the edge of the cavity. From the apex of the median posterior angle of the metasternum a short median groove extends forwards about 0·4 mm. and ends in the middle of a shallow elliptical depression. Each elytron with 10 striae, each of which is a shallow longitudinal groove with about 36 deep punctures distributed along it, the punctures near the base spaced by less than their own width.

REMARKS. The species should be easily recognizable by its slender form and dense puncturation. A photograph of the ventral surface of the living species *Pissodes castaneus* Degeer has been included (Pl. 4, fig. 2) for comparison with *Pisssodites*. The larvae of the species of both *Pissodes* and *Hylobius* feed in the wood of pine trees in north temperate regions.

The specific name is derived from *argillosus* = full of clay.

Genus ***LUTAGO*** nov.

DIAGNOSIS. Anterior coxae globular and contiguous ; middle coxae globular, separated by a distance equal to about one-quarter of the width of one coxa. Posterior coxae transverse, ratio width/length *c.* 2·0 : 1 ; the distance between the posterior coxae slightly less than the width of one coxa. First and second abdominal ventrites very large, their middle length together equal to four times the length of the third and fourth segments together. Prothorax transverse, without ocular lobes ; the eyes half covered by the thorax when the head is deflexed. Scutellum small, triangular. Hindwings present.

TYPE SPECIES. *Lutago fetosus* sp. nov.

REMARKS. From the disposition of the coxae and the proportions of the abdominal ventrites the genus appears to be related to *Pissodites* (Pl. 4, fig. 2). It differs in that

the hindbody and elytra are more transverse (ratio length/width of hindbody in *Pissodites c.* 1·8 : 1, in *Lutago c.* 1·3 : 1).

The generic name is masculine and is derived from *lutus* = mud.

Lutago fetosus sp. nov.

(Pl. 5, figs. 1, 2)

DIAGNOSIS. As for genus.

TYPE MATERIAL. *Holotype:* In.49372. A specimen including the prothorax. *Paratypes:* Twenty-one specimens. In.49373–49383, including the hindbody only; In.49041–49044, In.49078–49082, In.49087.

MEASUREMENTS. Length 2·2–2·6 mm.; maximum width 1·1–1·5 mm.

DESCRIPTION. Ventral surface fairly uniformly punctured. Posterior margins of the middle coxae delimited by a faint groove. Middle length of the first and second ventrites together about twice the middle length of ventrites 3, 4 and 5 together. Metasternum with a transverse groove above each coxa. Elytral striae impressed and regularly punctured, the sutural stria with about 22 punctures. Intervals between the striae sparsely and faintly punctured.

REMARKS. The specific name is derived from *fetosus* = prolific.

Other specimens. In.49088–49093. Length varying from 2·5–3·15 mm. Specimens include hindbody with or without elytra. Closely allied to *Lutago fetosus* sp. nov.

Lutago nanus sp. nov.

(Pl. 5, figs. 3, 4)

DIAGNOSIS. The species is distinguishable from *L. fetosus* by its small size and coarse puncturation.

TYPE MATERIAL. *Holotype:* In.49094. Including head, thorax, hindbody and elytra. *Paratypes:* Eight specimens. In.49095–49100, including hindbody with or without elytra; In.49389, including head, with broken rostrum, prothorax, hindbody and elytra; In.49390, including hindbody only.

MEASUREMENTS. *Holotype:* length (including head and prothorax) 2·35 mm.; width 1·1 mm.; *Paratypes:* length (hind body and elytra only) 1·5–1·7 mm.; width 1·05–1·15 mm.

DESCRIPTION. Puncturation of the prothorax, and the ventral surface of the hindbody coarse, the punctures deep, fairly regularly spaced and separated by about their own diameter; the punctures of the remaining abdominal ventrites fine. Prothorax narrowed anteriorly, widest (*c.* 0·85 mm.) near the posterior angles, length 0·5 mm.; base of prothorax sinuate with a broad rounded projection in the middle. Elytral striae very coarsely punctured in the basal half, the punctures becoming smaller in the apical half. Sutural stria with about 18 punctures. Intervals between striae finely and sparsely punctured.

REMARKS. The specific name is derived from *nanus* = dwarf.

Subfamily Erirrhininae Schönherr, 1826

Genus *ERIRRHINITES* nov.

Diagnosis. Anterior coxae globular, almost contiguous. Prothorax without ocular lobes or anteroventral emargination. From the outer edge of each anterior coxal cavity arises a short, deep, curved groove, which extends about half-way to the anterior edge of the thorax. Rostrum slender, the ends of the scrobes visible as shallow depressions at the base. Metasternum strongly transverse, ratio width/middle length *c.* 3·0 : 1. Middle coxae globular, separated by about one-third of the width of one coxa. Posterior coxae transverse, elliptical, separated by about the width of one coxa. Posterior edge of the metasternum between coxae very obtusely angulate. Metasternum with a transverse groove above each posterior coxa, each groove ending in a pit at the inner end. Abdominal ventrites 1 and 2 very long, the suture between the two faint. Ratio of middle length of ventrite 1/ventrite 2/ventrites 3–5 = 3·5 : 3·0 : 3·5.

Type species. *Erirrhinites bognorensis* sp. nov.

Remarks. The generic name is masculine and is derived from *Erirrhinus*, a modern genus of weevils.

Erirrhinites bognorensis sp. nov.

(Pl. 6, figs. 1, 2)

Diagnosis. As for genus.

Type material. *Holotype:* In.49045.

Measurements. Length (including head but not the rostrum) 3·5 mm.: maximum width 1·65 mm.; length of pronotum 1·15 mm.; length of elytra 2·45 mm.

Description. The prothorax is constricted anteriorly, being widest about one-third of its length from the base. The prothorax is densely punctured, the punctures on the dorsal surface being fainter than those on the anterior margin and ventral surface. This may be due to abrasion. The pronotum is without defined lateral margins. Elytral striae strongly and regularly punctured, the circular punctures separated by about their own length ; the third stria with 26 punctures. Intervals between striae slightly convex, sparsely and faintly punctured. Metasternum coarsely punctured. Ventrites fairly regularly punctured, the punctures much finer and more widely spaced than those on the ventral surface of the prothorax.

Remarks. The species of the living genus *Erirrhinus* are found in marshy places, associated with reeds and sphagnum moss.

Erirrhinites sp. indet.

Specimen In.49422. Head and prothorax only. Head finely and densely punctured. Rostrum broken off close to the base. Eyes partly concealed by the prothorax. Maximum width of the prothorax 2·25 mm., middle length 1·75 mm. Anterior coxae globular (0·65 mm. wide) almost contiguous, finely punctured. Prothorax

with slight ocular lobes and without defined lateral margins ; surface finely punctured on the anterior dorsal margin, elsewhere coarsely punctured and tuberculate and with a slightly raised median longitudinal line. From the outer edge of each anterior coxal cavity arises a short curved groove.

Subfamily Cryptorrhynchinae Schönherr, 1826

Tribe Sophroninini Lacordaire, 1866

Genus *TAYLORIUS* nov.

Diagnosis. Rostrum moderately slender, cylindrical, slightly curved, apex reaching to a point between the middle coxae ; the ventral surface of the prothorax with a deep median channel for the reception of the rostrum, the channel continued on the mesosternum as far as the anterior edge of the metasternum, and enclosed at the sides between the anterior and middle coxae by a vertical flange ; prothorax with ocular lobes ; anterior coxae separated from each other by about 0·6 of their own width ; middle coxae separated by about their own width ; anterior edge of the metasternum between the middle coxae raised to form a transverse keel ; metasternum transverse, ratio width/length *c.* 2·0 : 1 ; junction between the metasternum and first ventrite marked by a curved suture, convex anteriorly, without trace of a median groove ; metasternum with a declivity anterior each posterior coxa ; first and second abdominal ventrites very large, their middle length twice as great as that of ventrites 3, 4 and 5 together. Elytra elongate, smooth, without tubercles.

Type species. *Taylorius litoralis* sp. nov.

Remarks. The genus is named in honour of Mr. H. E. Taylor to whom we owe the discovery of the specimens on which this genus is based.

The gender of the generic name is masculine.

Taylorius litoralis sp. nov.

(Pl. 6, figs. 3, 4)

Diagnosis. As for genus.

Type material. *Holotype :* In.49340. A specimen which lacks only the legs, partly crushed dorsoventrally, length 4·4 mm. *Paratypes :* Seventeen specimens. In.49341, specimen which lacks only the legs ; elytra slightly crushed. In.49342–49352, comprising meso- and metathorax, abdomen and elytra, length 1·8–2·7 mm. In.49056–49059, consisting of meso- and metathorax, abdomen and elytra, length 2·5–3·0 mm. In.49060, a prothorax and head, with broken rostrum, showing the rostral groove very clearly.

Measurements. *Holotype :* length head (pronotum and abdomen) 4·4 mm.; length of elytra 3·0 mm.; width of elytra 1·9 mm.

Description. Rostrum finely punctured ; head densely punctured, the punctures separated by less than their own width ; thorax densely and uniformly punctured, the average size of the punctures being twice that of the punctures on the head ; metasternum and ventrites coarsely and densely punctured ; punctures on the

ventral surface separated by less than their own diameter ; density of punctures on the ventrites *c.* 450 per sq. mm.; pronotum without trace of a median line ; elytra rather parallel-sided, shoulders obvious, uniformly striate, each stria formed by a single row of large circular punctures which decrease in size slightly and uniformly but obviously from base to apex ; the punctures separated by less than their own diameter ; the third stria with about 33 punctures ; intervals between the striae flat and finely punctured.

Remarks. The form of the rostral channel on the ventral side of the thorax allows *Taylorius* to be classified with a high degree of certainty. It must be placed in the Cryptorrhynchinae. The fact that the apical part of the rostrum is enclosed at the sides by vertical flange-like processes of the pro- and mesosterna, and that the apex of the rostrum rests in an indentation of the metasternum places the genus close to *Mecistocerus* in the Sophroninini. The modern *Mecistocerus* includes more than 150 species and is widely distributed throughout the tropics.

The specific name is derived from *litoralis* = of the shore.

Genus ***KORYSTINA*** nov.

Diagnosis. Pronotum with the middle of the anterior edge produced into a short dorsoventrally flattened process which projects over the top of the head and is curved slightly downwards. Pronotum with ocular lobes present and the median longitudinal ventral channel deep and well defined. The channel ends in a cavity on the mesosternum into which the apex of the rostrum is fitted.

Type species. *Korystina gracilis* sp. nov.

Remarks. The blunt process projecting forwards from the middle of the anterior edge of the pronotum is a very rare character in the Curculionidae. In the Cryptorrhynchinae it is found only in the modern species *Glyptoporopterus sharpi* Lea. A comparison of other characters, however, indicates that the pronotal process in *Glyptoporopterus* has been developed independently from that in *Korystina*. The termination of the thoracic channel on the mesosternum places *Korystina* with *Taylorius* in the Sophroninini.

The gender of the generic name is feminine, and the name is derived from *korystos* = helmeted.

Korystina gracilis sp. nov.

(Pl. 7, figs. 3, 4)

Diagnosis. As for genus.

Type material. *Holotype :* In.49692. A specimen including head, pronotum with rostrum lying in the prosternal channel, prothorax and the greater part of abdomen and elytra. *Paratype :* In.49693. Specimen comprising prothorax only.

Measurements. Length of pronotum 1·8 mm. (holotype), 2·2 mm. (paratype). Maximum width of pronotum (at the base) 1·3 mm. (holotype), 2·0 mm. (paratype). Length of elytra (holotype) *c.* 3·2 mm.; width of elytra 1·5 mm.

Description. Pronotum with sides rounded anteriorly, widened at about the middle, then parallel-sided to the base ; without defined lateral margins, surface

densely and evenly punctured ; median anterior process of the pronotum broad, about one-fifth of the width of the base of the pronotum, slightly bilobed at the anterior end and with a median depression on the upper surface which is continued on to the pronotum ; the depression is elliptical in shape and ends about one-third of the length of the pronotum from the apex of the process, which are separated from adjacent punctures in the stria by about one-quarter of the length of a puncture.

Remarks. The specific name is derived from *gracilis* = slender.

Tribe Camptorrhinini Lacordaire, 1866

Genus *CAMPTORRHINITES* nov.

Diagnosis. Prosternum with a deep median longitudinal channel for the reception of the rostrum ; the channel opens anteriorly between the ocular lobes of the prothorax, passes back between the anterior coxae and is closed posteriorly just behind the coxae, before reaching the mesosternum. Anterior and middle coxae globular, the middle coxae separated by about half the width of one coxa. Posterior coxae transversely elliptical, ratio width/length *c.* 2 : 1, separated by about the length of a posterior coxa. Posterior edge of the metasternum between the coxae concave and obtusely angulate. Metasternum with a straight transverse declivity just anterior to the coxal cavity on each side. Rostrum slightly curved, stout, width about one-third of the length, with slight median and lateral longitudinal ridges ; eyes elliptical, elongate in the dorsoventral direction, partly hidden by the rounded anterolateral lobes of the pronotum. The first and second abdominal ventrites very long ; ratio of middle lengths of first and second ventrites together, the third and fourth ventrites together and the fifth ventrite alone *c.* 40 ; 7 ; 11. Elytra without tubercles, strongly punctate-striate. Pronotum simple, without protuberances.

Type species. *Camptorrhinites orarius* sp. nov.

Remarks. The presence of a ventral median longitudinal channel for the reception of the rostrum places the genus in the subfamily Cryptorrhynchinae, while the fact that the channel ends on the prosternum and is closed at the posterior end limits the genus to the tribe Camptorrhinini. This is a small tribe, represented at the present time by one large genus, *Camptorrhinus*, and about four small genera. *Camptorrhinites* approaches most closely to the genus *Pachyonyx*, the species of which are African and Oriental. It differs from *Pachyonyx* in having the prothorax and elytra simple, not ornamented with protuberances.

The gender of generic name is masculine, and is derived from *Camptorrhinus*, a modern genus of weevils.

Camptorrhinites orarius sp. nov.

(Pl. 7, figs. 1, 2)

Diagnosis. As for genus.

Type material. *Holotype :* In.49353. A specimen including the head, thorax, abdomen and elytra ; rostrum not entirely visible due to the lateral compression of the thorax. *Paratype :* In.49354. A specimen including the head, thorax,

abdomen and elytra ; rostrum fully visible, but puncturation of the body largely obscured.

Measurements. Length *c.* 5·0 mm. Length of elytra *c.* 3·5 mm.; width of elytra *c.* 2·5 mm. Length of rostrum 0·7 mm. Length of pronotum *c.* 1·7 mm.; depth *c.* 2·0 mm.

Description. Head and pronotum densely and uniformly punctured, with punctures on the pronotum about twice as large as those on the head and separated by less than their own diameter ; punctures on the sides of the thorax two or three times as large as those on the dorsal surface ; all coxae, the metasternum and abdomen coarsely punctured like the sides of the prothorax except on the apical ventrite where the punctures are finer ; elytra uniformly striate, each stria formed by a row of large circular punctures separated from each other by less than their own length. Stria 4 with 22 punctures. Intervals between the striae slightly convex and finely but sparsely punctured.

Remarks. The specific name is derived from *orarius* = of the coast.

Camptorrhinites spp. indet.

One specimen (In.49425) comprising the prothorax only. Length 2·25 mm.; depth (dorsoventral) 2·0 mm.; maximum width 2·1 mm. Prothorax closely and uniformly punctured, with a trace of a dorsal median longitudinal ridge ; with ocular lobes ; anterior coxae globular. The prosternal channel is obvious, opening anteriorly, but apparently not reaching the posterior edge of the prosternum. This would place the genus near *Camptorrhinites*. It differs from *C. orarius* by its larger size and the trace of a median longitudinal ridge.

One specimen (In.49426) hindbody and left elytron only. Length 1·85 mm.; maximum width 1·0 mm. Middle coxae globular with a cavity as wide as one coxa between them, the cavity closed behind by a transverse ridge. Posterior coxae transverse ovoid (0·18 × 0·30 mm.) separated by about 0·2 mm. Metasternum strongly transverse, without trace of a median impressed line ; posterior edge between the coxae slightly curved, not angulate in the middle ; coarsely and deeply punctured, the punctures separated by about their own width. First and second ventrites of the abdomen very large and apparently fused, length of the two ventrites together 0·85 mm., maximum width (at base) 0·85 mm. Length of the last three ventrites together 0·4 mm. Whole surface of the ventrites uniformly punctured like the metasternum. Elytral striae each marked by a longitudinal row of circular punctures separated by their own width.

CURCULIONIDAE gen. et spp. indet.

In.49355–49358. Comprising meso- and metathorax, abdomen and elytra. Length, 3·0–3·5 mm.; maximum width (at shoulders of elytra) *c.* 2·0 mm. Middle coxae globular, finely punctured, separated by median processes of meso- and metathorax which meet between the coxae ; the coxae separated by about one-fifth of the width of one coxa. Width of metasternum *c.* 1·65 mm., middle length of metasternum

0·6 mm. Sides of the metasternum very coarsely punctured, the surface having a reticulate appearance ; lower margins of the middle coxae delimited by a row of very coarse punctures ; middle and posterior parts of the metasternum closely, but more finely punctured than the sides ; posterior edge of the metasternum between the posterior coxae obtusely angulate with a very short median groove at the angle ; first and second ventrites very large, about twice as long as the last three ventrites together ; basal (first) ventrite punctured like the metasternum ; posterior coxae elliptical, separated by a distance equal to the width of one coxa. Elytral striae marked by very deep, elongate punctures, separated at most by their own length ; sutural stria with about 24 punctures ; intervals between striae moderately convex, very finely but sparsely punctured.

In.49068–49071. Comprising hindbody and elytra only. Length 4·6–5·5 mm., maximum width 3·5–4·0 mm. Closely related to the above four specimens in form and puncturation, but of much larger size.

In.49359. Length 6·2 mm., maximum width (across base of elytra) 3·1 mm.; length of elytra 4·4 mm. A specimen including head, prothorax and hindbody with elytra. The rostrum is missing, broken off close to the head. Eyes dorsoventrally elongate. Anterior coxae approximately globular, contiguous. Middle coxae globular, separated by about one-fifth of the width of one coxa. Metasternum width 2·65 mm., middle length 1·0 mm. Posterior edge of the metasternum between the coxae obtusely angulate, the coxae separated by 0·75 of the width of a coxa. Metasternum with a very short median groove extending forwards from the obtuse angle of the posterior edge. Ratio of middle length of first ventrite : second ventrite : third to fifth ventrites together, 2 : 1 : 2·5. Puncturation on the ventral surface is largely obliterated except on the first and second ventrites which have traces of dense puncturation. Elytral striae impressed and regularly punctured, sutural stria with about 26 punctures. Intervals between stria moderately convex, each with a row of very sparse fine punctures.

In.49366–49369. Comprising hindbody and elytra only. Length *c.* 4·0 mm., width 2·5 mm. Middle coxae globular, separated by about one-third of the width of one coxa. Posterior edge of the metasternum obtusely angulate, with a short median groove extending forward from the angle. Posterior coxae separated by about 0·75 of the width of one coxa. Length of first and second ventrites/length of third, fourth and fifth ventrites, *c.* 3/2. Ventral surface densely and fairly uniformly punctured. Elytral striae marked by large, deep, regularly spaced punctures, which are separated by about their own length. Towards the apex the striae are impressed and the punctures become smaller. Sutural interval with *c.* 29 punctures.

In.49360–49363, In.49061–49065. Comprising hindbody and elytra only. Length, 4·0–5·5 mm., width 2·0–3·25 mm. Middle coxae globular, separated by about half the width of one coxa. Posterior coxae separated by about the width of one coxa. Posterior edge of the metasternum curved, without a median groove. Ratio of length of first ventrite/second ventrite/third to fifth ventrites together, 4/3/3. Ventral surface densely and fairly uniformly punctured.

In.49364–49365, In.49072. Comprising hindbody and elytra only. Length, 2·75–3·5 mm. Middle coxae globular, separated by about one-fifth of the width of

one coxa. Metasternum width/middle length *c.* 2·5 mm., surface moderately convex on each side of the middle. Posterior coxae separated by about half the width of one coxa. Metasternum with a transverse fold above each posterior coxa. Fifth ventrite almost as long as the first or the second ventrites. Third and fourth ventrites short. Ventral surface densely and fairly uniformly punctured. Elytral striae impressed and punctured, the punctures becoming smaller and the striae deeper towards the apex.

In.49370–49371, In.49073, In.43369–43370. Maximum width 2·5–2·75 mm. Middle coxae globular, separated from each other by about one-quarter of the width of one coxa. Posterior coxae separated by about two-thirds of the width of a coxa. Posterior margin of the middle coxae and posterior coxae defined by a punctured groove. Metasternum with a transverse groove above each posterior coxa, ending in a deep pit at the inner end. Fifth ventrite, second and first ventrite at the side behind the coxa about equal in length. Third and fourth ventrites very short, their length together less than that of the fifth ventrite. Whole ventral surface densely and finely punctured, the punctures of the first ventrite between the coxae a little coarser than elsewhere. Elytra with striae finely punctured (about 20 punctures) in the basal half, the punctures becoming obliterated and the striae impressed in the apical half. Intervals between the striae flat except at the apex. Intervals finely and sparsely punctured.

In.49074–49077. Fragments of hindbody and elytra. Recognizable as Curculionidae by the posterior coxae and proportions of the lengths of the ventrites.

In.49697. Apical third of the elytra and the last three ventrites of the abdomen.

In.49698. Head (lacking the rostrum) and prothorax. Length 1·0 mm., maximum width, at the base of the prothorax, 0·95 mm.

In.49699. Abdomen and part of the metasternum. Length 1·95 mm.

In.49700. Head (with greater part of rostrum lacking) and anterior half of the pronotum. Length 2·5 mm., width 2·8 mm.

In.49701. Head (with greater part of the rostrum lacking) and prothorax, with anterior coxae. Length 1·85 mm., maximum width, near middle of the thorax, 1·95 mm. Coxae globular and contiguous. Lateral edges of pronotum uniformly curved, anterior and posterior angles broadly rounded.

In.49702. Meso- and metathorax and abdomen, and inner impressions of the elytra. Length 4·75 mm., maximum width of the metasternum 1·5 mm. Middle coxae circular, almost contiguous. Metasternum coarsely and rather sparsely punctured, and with a short deep median groove running forwards from the middle of the base. Posterior coxae transverse elliptical, faintly punctured. First and second ventrites each about twice as long as the third and fourth respectively.

In.49703. Base of left elytron with left middle and posterior coxae and part of metasternum.

In.49388. Hindbody without elytra.

In.49046–49055, In.49086. Hindbody with or without elytra.

In.49391–49392. Hindbody and elytra only. Length 4·5–4·75 mm., width 3·0–3·5 mm. Sutural striae with 25 punctures. Middle coxal cavities each with a raised posterior rim, outlined by a curved row of very coarse, coalescent punctures

which form a deep groove. First abdominal ventrite with a row of very coarse semi-coalescent punctures which outlines a raised basal margin. Metasternum very coarsely punctured at the sides.

In.49424. Fragment of a right elytron. Length 5 mm.

In.49419. Hindbody and elytra. Length 3·6 mm.

In.49420. Hindbody and elytra, and part of posterior right femur. Elytra and ventral surface very deeply and coarsely punctured.

In.49421. Hindbody only. Length 3·4 mm. Puncturation of ventral surface largely obliterated, visible only on sides of metasternum and abdomen. Middle coxae globular, separated by about one coxa width ; posterior coxae transverse ovoid, separated by about one coxa length ; segmentation of abdomen obscured.

In.49422. Head (with rostrum lacking) and prothorax. Coxae globular and contiguous ; dorsal and ventral surfaces coarsely granulate. Pronotum without defined lateral margins, so that there is no boundary between dorsal and ventral surfaces. Pronotum length 1·6 mm., maximum width (near base) 2·4 mm. The size, shape and the contiguous front coxae suggest that this specimen may belong to the same species as In.48355.

In.49083–49085, In.49384–49387. Including the hindbody, with or without elytra. Length 2·0–2·25 mm., width 1·25–1·5 mm. This species is recognizable by the dense uniform puncturation of the ventral surface, the broad depression covering the middle of the posterior half of the metasternum, the middle third of the first ventrite and the anterior part of the second ventrite, and lastly by the extremely short third and fourth ventrites. Proportions of the middle length of the first to fifth ventrites are 26/24/5/5/11. Middle coxae globular, separated by about one-quarter of the width of the width of one coxa. Posterior coxae separated by the width of one coxa. Elytral striae marked by large deep, regularly spaced punctures. Intervals between the striae very finely punctured. The sutural striae with about 24 punctures.

In.49033–49034. Hindbody only. Length 2·25 mm., width 1·1–1·3 mm. Middle coxae globular, contiguous. Metasternum inflated with a groove around the posterior margin of the coxae and a very short median longitudinal groove arising from the posterior edge. Abdominal ventrites 1 and 2 long, 3 and 4 very short.

In.49035. A femur and base of a tibia of a weevil. Length 2·0 mm., maximum width 9·75 mm., with a prominent tooth on the under side.

In.49036–49040. In.37734–37735. These specimens are the hindbodies of several species of weevils. They are in poor condition and cannot be identified with certainty with any other specimen.

In.49334–49337. Including hindbody and elytra. Length 2·5–3·0 mm., width 1·4–1·9 mm. Resembles *Lutago fetosus* in the puncturation of the ventral surface and in the punctured groove to the posterior edges of the middle coxae. It differs by being larger and by the transverse groove above each posterior coxa. This groove ends on the inner side in a deep pit. Elytral striae coarsely but regularly punctured, the punctures separated by about their own length. Sutural stria with about 20 punctures. Intervals between striae moderately convex, rather sparsely and faintly punctured.

In.49338–49339. One specimen including metathorax and abdomen with puncturation obliterated. The second specimen comprising the abdomen only, densely punctured.

In.49066–49067. Hindbody and elytra only. Length 3·75 mm., width 2·5 mm. Metasternum and ventrites densely and fairly uniformly punctured, the punctures separated by less than their own diameter. Middle coxae globular, separated by about half the diameter of one coxa. Posterior coxa separated by about the width of one coxa. First and second ventrites very large and the third and fourth very short. Ratio of middle lengths of ventrites 1, 2, 3, 4, 5, is 23/20/3/3/8. Suture between ventrites 1 and 2 rather faint. Elytral striae strongly punctured, the punctures circular and separated by less than their own diameter. Intervals between striae finely punctured.

In.49417–49418. Hindbody only. Length 2·1 and 1·6 mm. Width, 1·5 and 1·1 mm. Puncturation obscured.

CARABIDAE gen. et spp. indet.

In.49433. Comprising the head of a carabid beetle. Length from the middle of the anterior edge of the clypeus 1·8 mm., width across the eyes 2·0 mm. Of the mandibles only the base of the left and the basal half of the right are present. Labrum missing, clypeus clearly visible, quadrate, transverse. Front with a longitudinal groove immediately above each eye. Eyes strongly convex. On the ventral surface the typical bilobed mentum is visible together with the basal segment of the left labial palp. Submentum with a strong transverse depression.

The specimen appears to belong to the Pterostichini, a tribe which includes many species of carnivorous ground beetles.

In.37736. Basal portion of a large elytron, length 5·5 mm., width (complete) 2·5 mm. Striae strongly and regularly punctured, the circular punctures separated by about their own length ; intervals between striae flat ; a long scutellar striole bearing 14 punctures is present at the base on the inner side.

COLEOPTERA indet.

By reason of their incompleteness the following specimens of Coleoptera cannot be referred to a family with certainty.

In.49423. Length 2 mm., including only the abdomen and posterior half of the elytra of a beetle. First and second ventrites each about twice as long as each of the third and fourth ventrites. Fifth (terminal) ventrite very large, as long as the first and second ventrites together. This ventrite is rounded apically and has a broad ventral depression beginning near the middle of the ventrite and widening to the apex. All ventrites fairly densely punctured. Elytra deeply striate, each stria about half as wide as the adjoining intervals and faintly punctured. Intervals between striae moderately convex, with fine punctures of two sizes, the larger punctures arranged in a line more or less in the middle of the interval ; smaller punctures of about half the diameter of the larger punctures more numerous and scattered.

In.49435. Comprising the greater part of the right elytron of a beetle. Length 6·5 mm., maximum width 3·5 mm. Only the basal quarter of the elytron is not obscured. This shows nine impressed and punctured longitudinal striae. There is no scutellar striole, and the intervals between striae are convex and finely and sparsely punctured. More precise identification is not possible but the appearance of the elytron suggests that the species might belong to the Curculionidae.

In.49436. Comprising the abdomen of an insect. Length 3·75 mm., maximum width 2·5 mm., with six visible segments. It is not possible to assign it with certainty to the Coleoptera.

In.49437. Including the abdomen and left elytron of a beetle. Length 3·25 mm., maximum width 2·5 mm. The abdomen is obscured with the exception of the terminal ventrite which is unpunctured. A small triangular scutellum is visible at the base of the inner edge of the elytron. Elytron with seven visible striae, which are longitudinal, equally spaced, faintly and regularly punctured. Intervals between striae flat, unpunctured. Shoulder of the elytron prominent, square.

In.40438. Abdomen of a beetle with posterior and middle coxae attached. Length 4·6 mm., maximum width 3·75 mm. The metasternum is reduced or crushed so that the middle and posterior coxae are in contact. Five ventrites are marked by irregular grooves which are mainly longitudinal in the middle. In addition the surface of the ventrites is fairly closely punctured. Width of the basal ventrite 3·75 mm. The abdomen is tapered to the apex, the width of the apical ventrite being 2·1 mm.

In.49439. Consisting of the elytra of a beetle. Length 4·6 mm., maximum width 2·6 mm. Longitudinal striae impressed and faintly punctured. Intervals between striae slightly convex and sparsely punctured. Elytra with shoulders obvious, parallel sided to about the middle then tapered to the apex.

In.43365–43368. Fragments of four species of Coleoptera.

Specimens other than Coleoptera

Order HEMIPTERA

Suborder HETEROPTERA

Family PENTATOMIDAE Leach, 1815

Subfamily PENTATOMINAE Leach, 1815

Genera and species indeterminate

In.49442. Including head and prothorax with anterior coxae. Length, 3·0 mm., width across prothorax 3·0 mm.

In.49443. Including head, part of the thorax, with all three pairs of coxae and the scutellum. In this specimen and In.49442 the bucculae are visible on the underside of the head, and on the dorsal side the sutures dividing off the tylus from the jugae.

In.49444. Including part of the abdomen only. Length 2·85 mm., width 2·5 mm.

IV. ACKNOWLEDGMENTS

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PLATE 2

FIG. 1. *Venablesia colluvium* gen. et sp. nov. Ventral. Holotype, In.49102, × 25.
FIG. 2. *Stagetus denticornis* Champion. (Recent.) Ventral, × 25.
FIG. 3. *Venablesia colluvium* gen. et sp. nov. Dorsal, holotype, × 25.
FIG. 4. *Pactopus avitus* sp. nov. Dorsal. Holotype, In.49404, × 15.


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3
4

PLATE 3

FIG. 1. *Pactopus avitus* sp. nov. Ventral. Holotype, In.49404, × 25.
FIG. 2. *Pactopus horni* LeConte. (Recent.) Ventral, × 15.
FIG. 3. *Potergites senectus* gen. et sp. nov. Dorsal. Holotype, In.49405, × 28.
FIG. 4. *Potergites senectus* gen. et sp. nov. Same specimen, ventral, × 28.

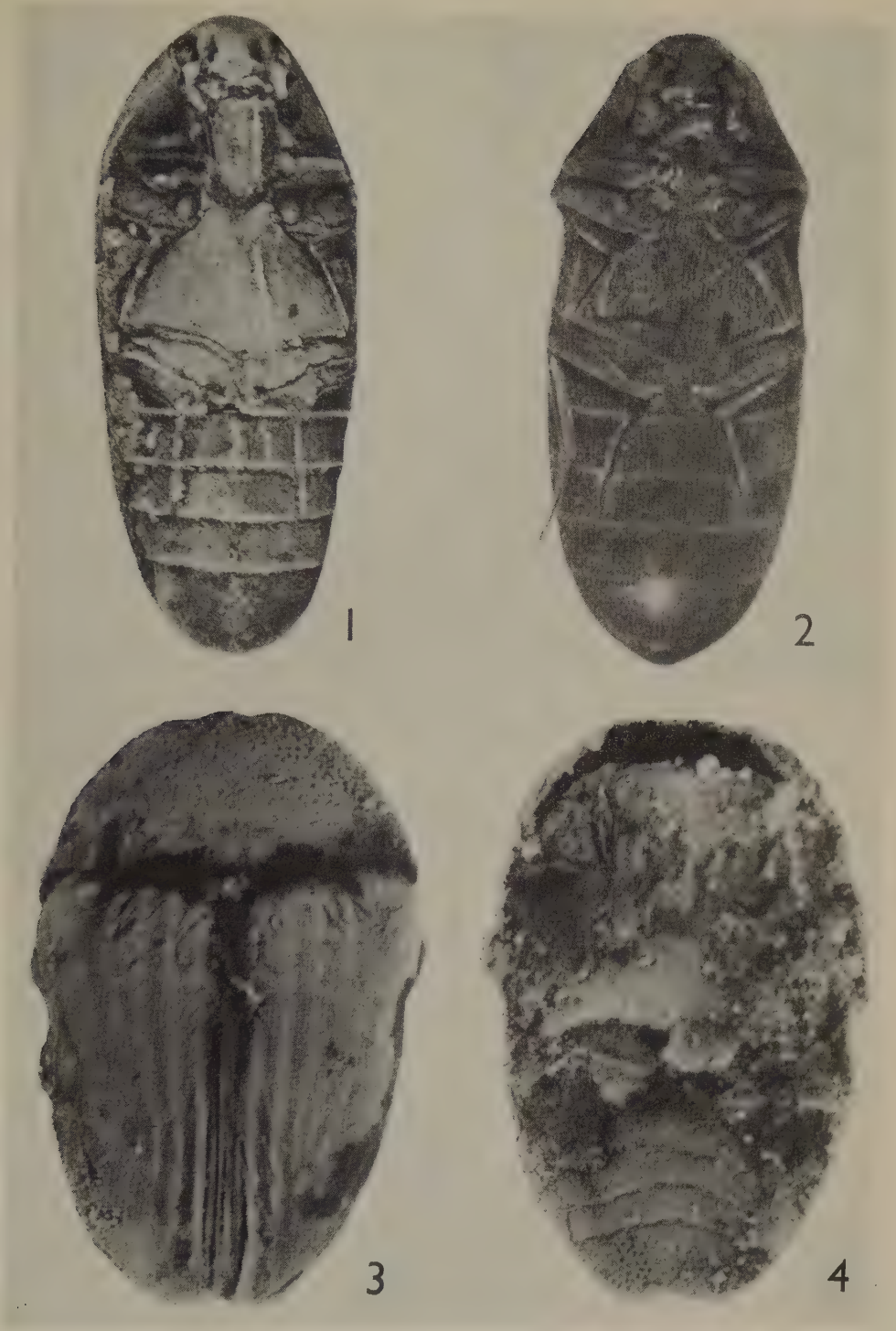
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PLATE 4

FIG. 1. *Saprosites cascus* sp. nov. Ventral. Holotype, In.49695, × 30.
FIG. 2. *Pissodes castaneus* Degeer. (Recent.) Ventral, × 14.
FIG. 3. *Pissodites argillosus* gen. et sp. nov. Ventral. Holotype, In. 49325, × 30.
FIG. 4. *Pissodites argillosus* gen. et sp. nov. Same specimen, dorsal, × 30.

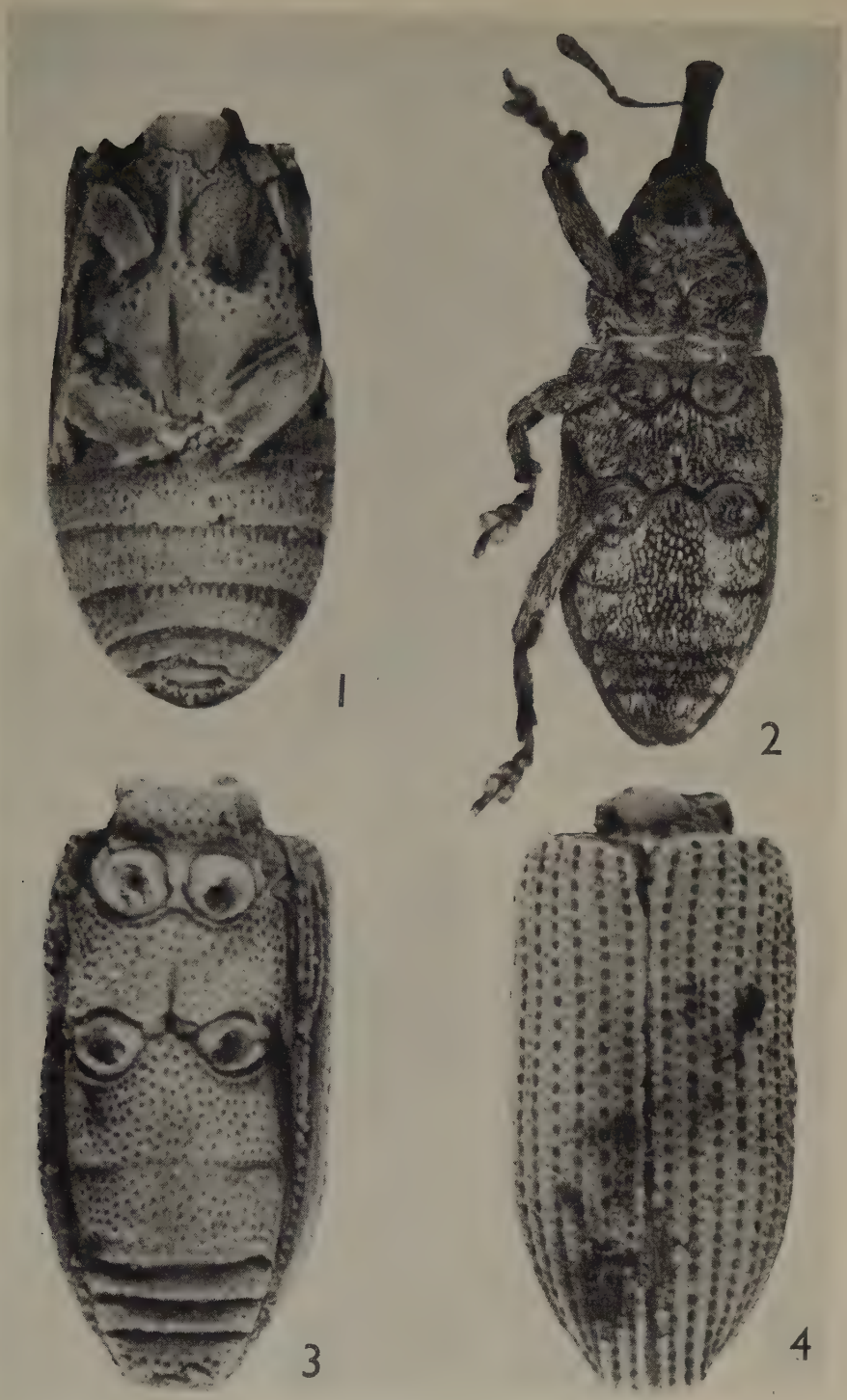
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PLATE 5

FIG. 1. *Lutago fetosus* gen. et sp. nov. Ventral. Holotype, In.49372, × 33.
FIG. 2. *Lutago fetosus* gen. et sp. nov. Same specimen, dorsal, × 33.
FIG. 3. *Lutago nanus* gen. et sp. nov. Dorsal. Holotype, In.49094, × 38.
FIG. 4. *Lutago nanus* gen. et sp. nov. Same specimen, ventral, × 38.

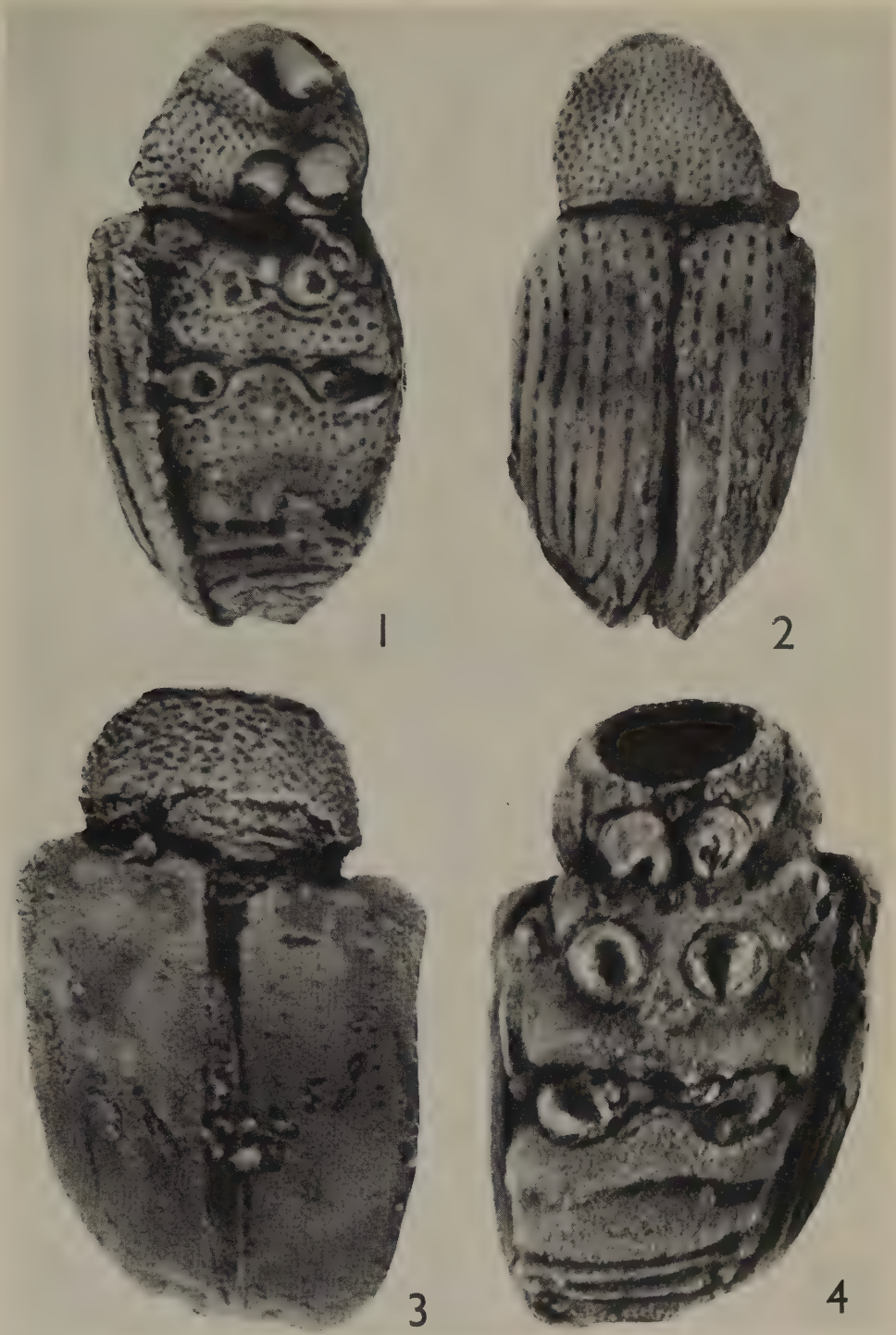
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PLATE 6

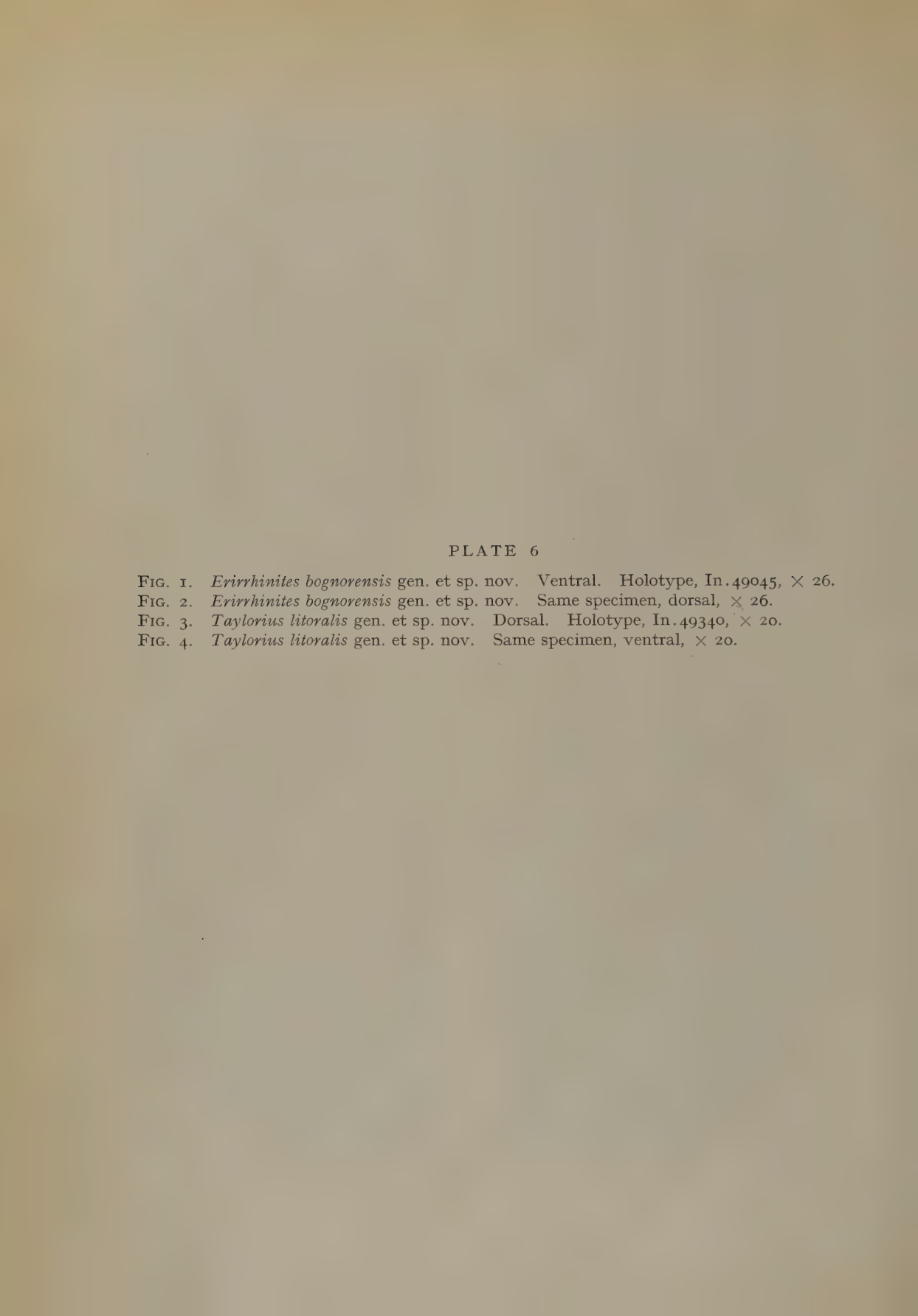

FIG. 1. *Erirrhinites bognorensis* gen. et sp. nov. Ventral. Holotype, In.49045, × 26.
FIG. 2. *Erirrhinites bognorensis* gen. et sp. nov. Same specimen, dorsal, × 26.
FIG. 3. *Taylorius litoralis* gen. et sp. nov. Dorsal. Holotype, In.49340, × 20.
FIG. 4. *Taylorius litoralis* gen. et sp. nov. Same specimen, ventral, × 20.

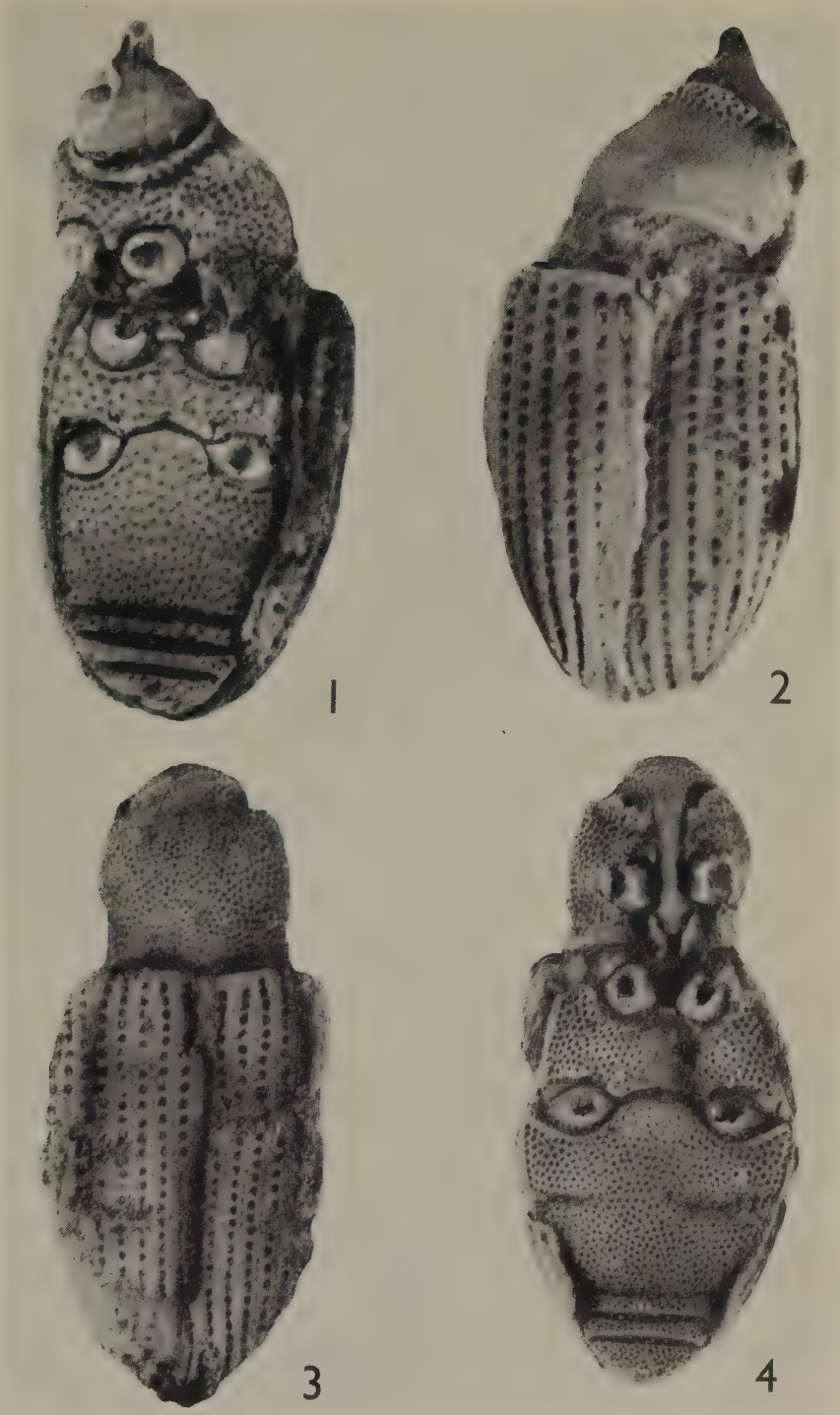
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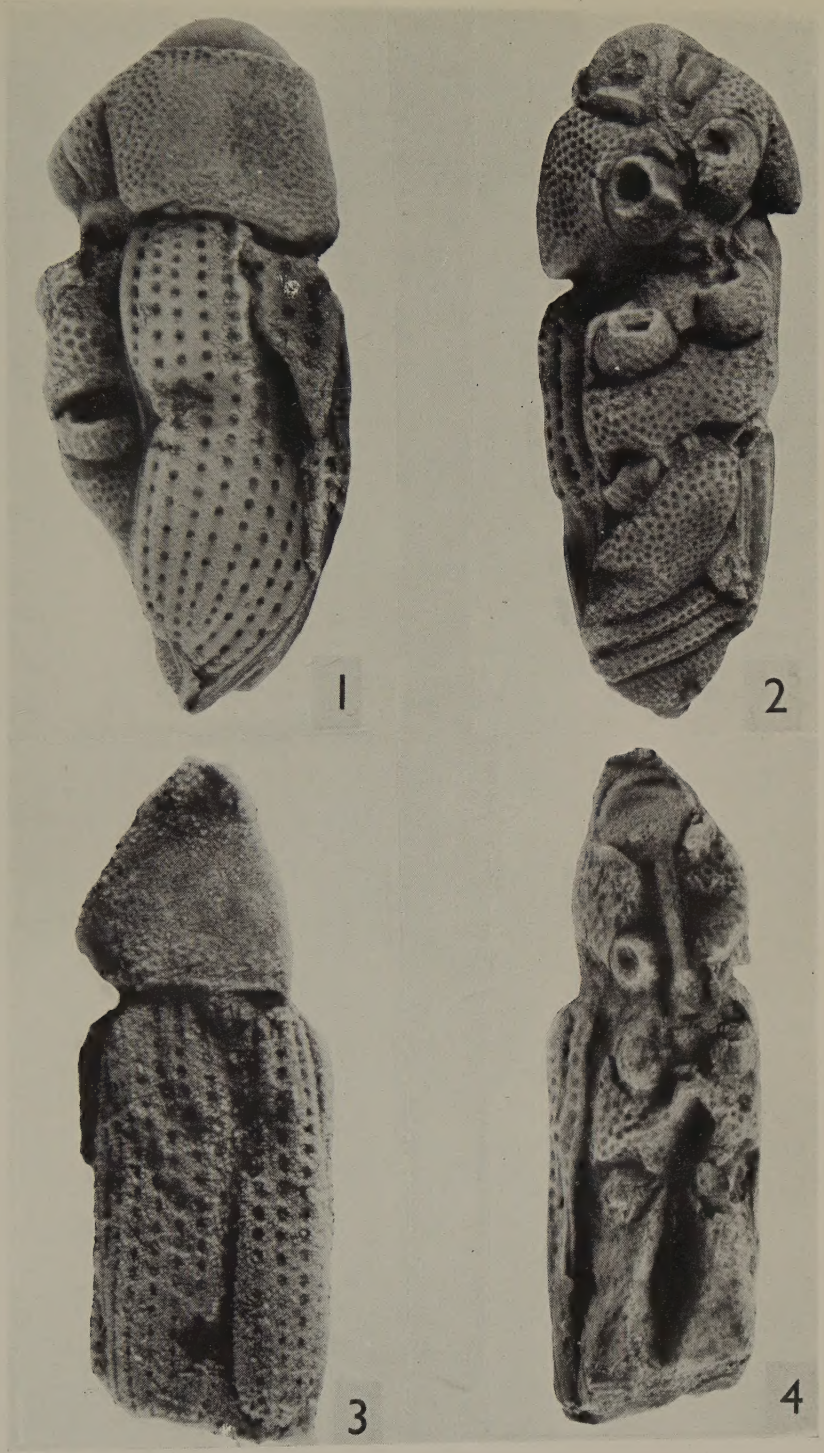
PLATE 7

FIG. 1. *Camptorrhinites orarius* gen. et sp. nov. Lateral. Holotype, In.49353, × 18.
FIG. 2. *Camptorrhinites orarius* gen. et sp. nov. Same specimen, ventral, × 18.
FIG. 3. *Korystina gracilis* gen. et sp. nov. Dorsal. Holotype, In.49692, × 18.
FIG. 4. *Korystina gracilis* gen. et sp. nov. Same specimen, ventral, × 18.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